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CANADA'S REINDEER

A PUBLICATION OF

LANDS, PARKS AND FORESTS BRANCH

ISSUED BY THE

NORTHWEST TERRITORIES ADMINISTRATION

OTTAWA

1940

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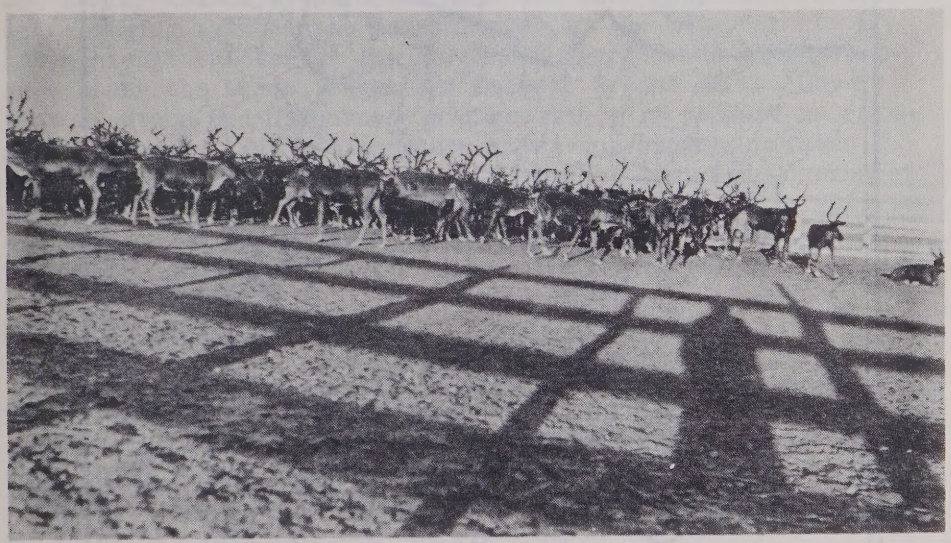

Reindeer in Corral

Issued by the

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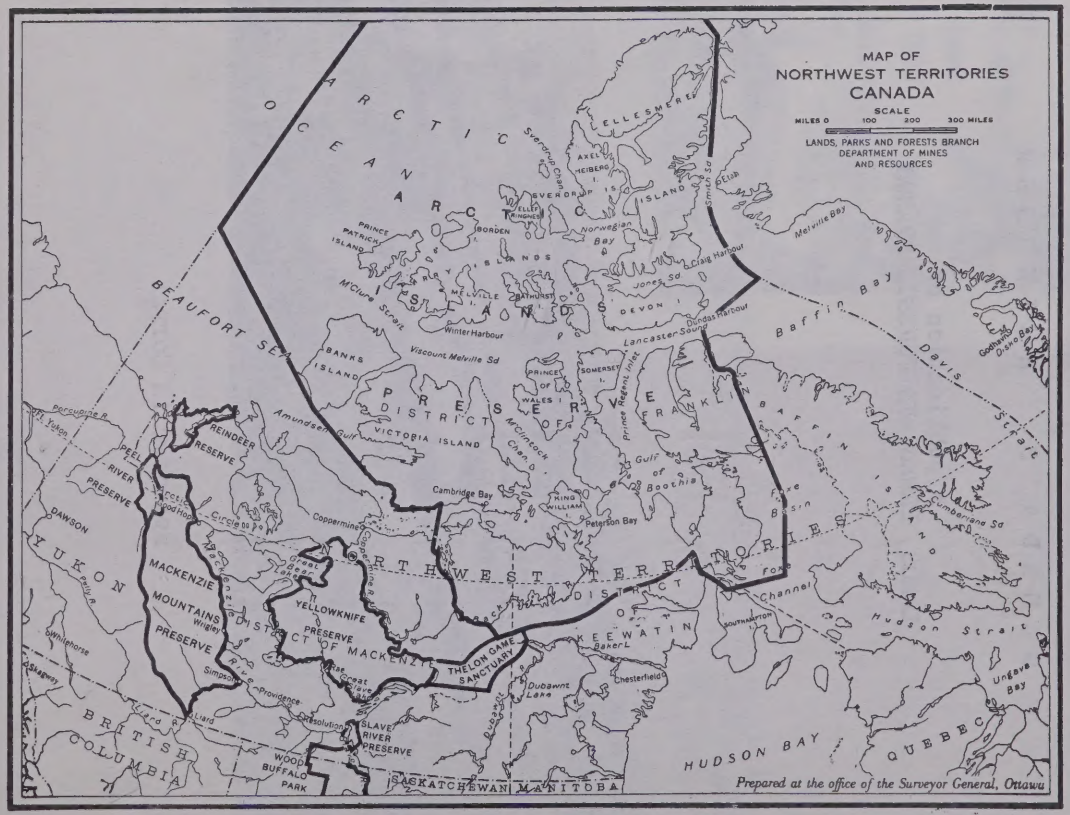
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C A N A D A ' S R E I N D E E R

Introduction

An increasing interest is being taken by the general public in the reindeer enterprise of the Dominion Government. The establishment in Canada in 1935 of a herd of semi-domesticated reindeer brought from Alaska to the reserve near the mouth of the Mackenzie River in the Northwest Territories marked the commencement of an industry which is intended to broaden the basis of subsistence of the native population. The principal zone of usefulness of reindeer lies outside the area in which agriculture is possible. These animals live on the lichens and herbage indigenous to a northern climate and are by far the most useful animals for the production of food and clothing that can be domesticated in the region north of the agricultural belt. The Northwest Territories Administration under the Lands, Parks and Forests Branch of the Department of Mines and Resources is directing this venture in reindeer husbandry. An advisory committee on reindeer affairs composed largely of scientific officers of Dominion Government departments submit recommendations to the Northwest Territories Administration in reference to maintaining and extending the industry.

Reindeer in Canada

The first serious attempt to introduce reindeer into Canada to form a source of food and clothing for the natives appears to have been made by the International Grenfell Association. Commencing in 1907 the late Sir Wilfrid Grenfell introduced these animals into northern Newfoundland with a view to their use later in Labrador, and while the original herd of 250 animals from Norway increased in a few years to over 1,200 head, a series of misfortunes caused the failure of this attempt. In 1921 the Hudson's Bay Reindeer Company brought 550 reindeer from Norway to southern Baffin Island but the deer soon scattered, dwindled rapidly in numbers, and the scheme was abandoned. Notwithstanding these reverses, it was apparent to observers that there was a place for reindeer in the economic life of Canada. This view was stimulated by the successful introduction of reindeer into Alaska where large herds developed from the original 1,280 animals brought from Siberia during the period 1892-1902. In 1919 a Royal Commission was appointed to study the possibilities of developing reindeer and musk-ox

industries in the Arctic and sub-Arctic regions of Canada. An immense amount of information was assembled and studied. In its report (1922) the Commission recommended the establishment of experimental herds of reindeer in selected locations, and in pursuance of this recommendation the Canadian Government undertook extensive investigations to determine whether certain areas in northern Canada would be suitable for reindeer pasturage.

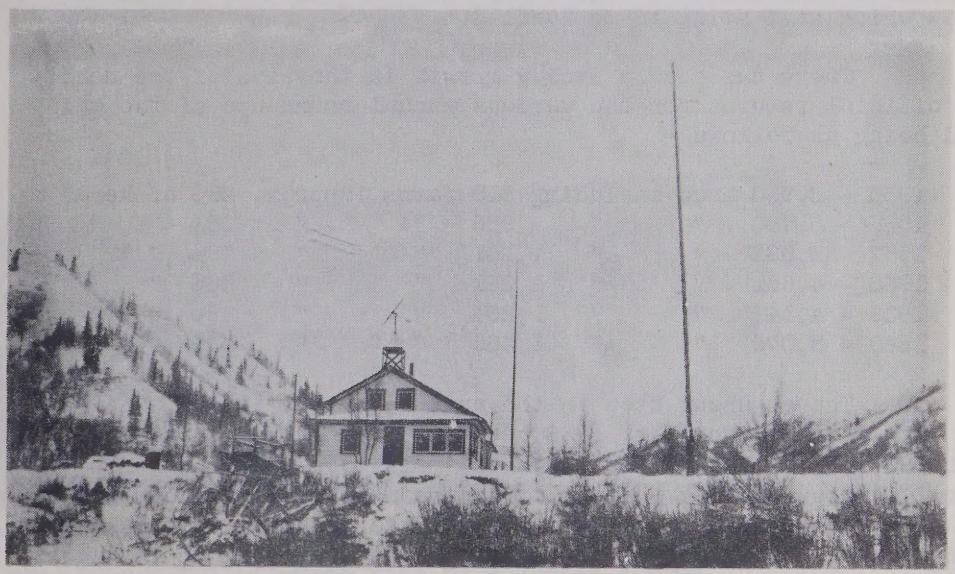
A reconnaissance of the grazing possibilities of the area lying between the Yukon-Alaska Boundary and Coppermine River and north of Great Bear Lake was made in the years 1926-28 by Mr. A. E. Porsild, an experienced botanist, assisted by his brother, Mr. R. T. Porsild. Prior to the study of the Canadian range, the investigators visited Alaska to observe the conditions under which reindeer were handled. In 1930 Mr. A. E. Porsild also made a general survey of reindeer pasturage conditions in an area lying west of Hudson Bay.

The report of the investigations made in 1926-28 showed that conditions in the areas examined were eminently suitable for the maintenance of reindeer. The carrying capacity of the area from the Yukon-Alaska Boundary to Franklin Bay was estimated to be at least 250,000 head. An area lying north of Great Bear Lake was also examined closely and was estimated to be capable of supporting over 300,000 reindeer. There was clear evidence that at least half a million reindeer could be maintained in so far as vegetation is concerned in the territories examined. With this encouraging advice steps were taken to arrange for the delivery of 3,000 reindeer by an Alaskan reindeer company. These were to be brought to the selected Canadian range near the mouth of the Mackenzie River.

Mr. A. E. Porsild proceeded again to Alaska to select the stock for the overland drive. These animals numbering about 3,400 head, including mainly does with a proportion of bucks and some steers for draught and food purposes, were assembled near Kotzebue Sound, northwestern Alaska, from which place the drive to Canada commenced about Christmas 1929. This movement was in charge of Andrew Bahr, veteran Lapp reindeer herder, assisted by other Lapps and several Eskimos. Many difficulties were encountered in detaching this large number of reindeer from their home range and moving them several hundreds of miles. At first many of the deer broke away and were not recovered. Blizzards, intense cold, wolves, the presence of other reindeer or caribou, and other troubles impeded the progress. Nevertheless the trek continued, the losses to the herd being recouped to some extent by the fawning season each year. The deer arrived in Canadian territory in 1933 but an unsuccessful attempt to cross the Mackenzie River in the winter of 1933-34 delayed delivery of the herd until March, 1935. The number of deer delivered was 2,370, made up of 1,498 does of all ages, 611 bucks, and 261 steers. It was considered that less than twenty per cent was original stock which started from the Alaskan range in 1929.

The Reindeer Station

At the commencement of the drive, it was thought that delivery of the reindeer herd from Alaska might take place within two years, and in 1930-31 preparations were made to receive the deer on the Canadian range. A corral was constructed at Kittigazuit on the Arctic Coast east of the Mackenzie Delta, and the headquarters of the reindeer staff was established about sixty miles inland along the east branch of the Mackenzie River. At this point buildings were constructed for the accommodation of the employees, and warehouses were built for the storage of supplies. This station is at the foot of the Caribou Hills which attain an elevation of about five hundred feet and follow the course of the Mackenzie River. The plateau extending back from the river carries a splendid cover of reindeer moss which constitutes the winter diet of the reindeer.



Foreman's Residence, Government Reindeer Station

In 1931, three Lapp herders and their families were brought from Norway to assist in the handling of the deer on arrival and in training the native Eskimos. In the later stages of the reindeer drive from Alaska the assistance of these men was enlisted by the vendors in charge of the drive. In December, 1933, the Government established the reindeer reserve comprising approximately 6,600 square miles including both summer and winter ranges situated immediately east of the Mackenzie Delta. In 1935 an aerial survey of this reserve was made and the maps resulting therefrom have proved extremely useful to the reindeer herders in trips across the reserve and in the selection of grazing areas for the deer.

Development of the Reindeer Industry

During the first summer on the reserve, the reindeer grazed in the coastal area in the vicinity of the corral at Kittigazuit where a round-up and count of the deer was made in midsummer. The count showed that the herd had been substantially increased by a healthy fawn crop of about 800 animals. By early winter the herd was moved inland to the vicinity of the main station and grazed in that area until the following spring when it was taken to Richards Island, a short distance off the coast, which had been selected as the summer range. This island proved very suitable for summer grazing and has been used for that purpose each succeeding year.

A new corral complete with holding pens and a lead fence was constructed on Richards Island, near Kigdluait, for the round-up which takes place each summer. A peninsula near the corral serves as an ideal place for holding the portion of the herd which has passed through the corral and prevents these deer mixing with those which have still to be handled.

There has been a steady growth in the size of the herd, the official returns for the various annual round-ups of the main herd being as follows:-

1935 - 2,960	head	including	815	fawns	(approx.	28%	of	herd)
1936 - 3,750	"	"	936	"	"	25%	"	"
1937 - 4,092	"	"	1,181	"	"	29%	"	"
1938 - 4,631	"	"	1,281	"	"	28%	"	"
1939 - 4,146	"	"	1,204	"	"	29%	"	"
1940 - 5,076	"	"	1,486	"	"	29%	"	"

The apparent drop in the number in 1939 is explained by the fact that in December, 1938, a part of the herd comprising about 950 head was separated from the main body and transferred to a new location in the vicinity of Anderson River. This new herd is known as Native Herd No. 1 and is under the management of Eskimo herders under Departmental supervision. At the round-up in August, 1939, this herd had increased to 1,196 head including 346 fawns and at a second round-up in August, 1940, there were 1,559 animals, including 448 fawns.

The proportions of the herds at the round-ups in 1940 were as follows:-

Main herd		Native Herd No. 1	
Does -	2,990	Does corralled -	751
Bucks -	870	Bucks " -	200
Steers -	1,216	Steers " -	336
		Animals counted but not corralled and classified -	272
Totals	5,076		1,559

Although the Canadian reindeer industry is still in its infancy and the main concern is to train young natives in reindeer husbandry and build up a number of herds located at suitable places, there has become available each year for disposal a number of animals (principally steers and aged does) surplus to requirements in maintaining an efficient balance in the herds. In connection with the main herd about 300 deer have been slaughtered each year and used for food and clothing purposes. The slaughtering operations have been generally conducted in the late autumn or early winter, the meat being distributed mainly to the mission hospitals and residential schools in the Mackenzie Delta area. The remainder of the meat is used for relief and camp purposes with a limited quantity for sale in the district to assist in meeting the requirements of local residents capable of paying for their meat supply, but who have difficulty in obtaining the same owing to the remoteness of the area.

Part of Main Herd on Richards Island

Fawn skins which become available at the annual round-up, usually from injured or defective animals, are used in the manufacture of parkas and other articles of clothing required by the reindeer staff. In the case of hides from mature animals available later in the year, experiments in tanning are being made to utilize these products to the best advantage.

Herding and Management

The routine of the reindeer management on the reserve commences in the spring with the movement of the main herd from the winter range to the coastal area where fawning begins about the 1st of April and extends into June. This period is followed by the movement of the deer to the northern part of Richards Island where the winds on the Arctic headlands disperse the insect pests. Later the deer are moved gradually toward the corralling grounds. The round-up operations usually commence during the last week of July and, if

weather conditions are suitable, are completed within four or five days. However, if high winds or stormy weather prevail the round-up may last as long as two weeks. The reindeer have a tendency to head into the wind and unless it is blowing in the right direction the herders may have difficulty in rounding up the animals. During the summer season the herders devote part of their time to putting up fish and whale meat for winter use and wood and other supplies for the next spring.

Reindeer Herders

After the round-up the deer graze over the summer range until again assembled for the annual slaughter of surplus stock which usually takes place near the southern tip of Richards Island. The meat is transported chiefly by open water to Aklavik. A change in the slaughtering procedure is contemplated, in order to preserve the limited moss supply on the summer range by making longer use of the abundant vegetation available on the inland winter range. It is proposed to move the deer to the mainland by swimming them across the intervening channel. Later they can be assembled near the main station for the slaughter of surplus stock after the freeze-up. The animals will be in prime condition at that time and the meat can be transported by dog team or aeroplane. The maintenance of the herd on the inland range during the winter months completes the cycle of activity for the herding staff.

All herders share in an annual fawn bonus of fifty cents per head. It is usual to have two herders on duty with the herd at one time. Each man has a herd dog and remains with the deer for a period of twenty-four hours, after which he is replaced by another shift and has a period of rest. This may last two days unless interrupted by the

moving of camp or the necessity of replenishing supplies or firewood. Under ordinary conditions the life is not strenuous but in emergencies such as storms, high winds, the presence of wolves in the vicinity, or on special occasions such as transferring the herd from one range to another, the round-up or the slaughter of surplus stock, it is necessary to work long hours. Between the periods of herding, the men tend to their camps on the range, look after their clothing, and secure fish for themselves and dogs. The families of the herders usually accompany them on the range except during part of the winter season, when they are accommodated at the main depot.

The activities of the part of the staff maintained at the headquarters station are somewhat different from those of the herders. The supervisory officers, in addition to directing the various movements of the main herd and supervising the native herd, must maintain adequate supplies and equipment to carry on the reindeer work and see that regular reports are forwarded to the administration office at Ottawa by means of the radio service established at the Reindeer Station in 1938 and by the mail from Aklavik. It is also necessary for the supervisory officers to extend the training in reindeer management to as many as possible of the young Eskimos available and to make arrangements for enlarging the scope of the industry by the establishment of additional native herds as trained apprentice herders and the necessary deer become available for this purpose. The maintenance of buildings, boats, and other equipment, and the collection of wood obtained locally for fuel purposes is included in additional activities for which the staff at the main station is responsible.

Training of Natives

The primary purpose of the introduction of reindeer into Canada was to provide a self-sustaining industry for the benefit of the native population, and steps were taken from the outset to interest young natives in securing training at the Reindeer Station. As a result apprentice herders are in training at all times. They are provided with a small wage, rations, fawn skins, and all necessary equipment, and take their place with trained herders in handling the deer.

The three Lapp herders brought from Norway have assisted considerably in the training of natives. One of the Lapps returned to Norway in 1936 after completing his contract and another returned in 1938. The third member continues to serve with the herd. The herding staff is composed mainly of Eskimos under the direction of the supervisory reindeer officers. These Eskimos were residents in the Mackenzie Delta area. In view of the extension of the reindeer industry to the eastward of the reserve, the Administration is taking steps to obtain young natives from the vicinity of Coronation Gulf to receive training in reindeer work.

Native Herd No. 1

In December, 1938, Charlie Rufus, one of the apprentice herders, who had been given about three years' training with the herd, was entrusted with a loan of about nine hundred and fifty deer which he moved under departmental supervision to a location near Anderson River, about 150 miles east of the Reindeer Reserve. His father, Rufus Kalealuk, owner of a schooner, is associated with him in this venture, and additional natives are engaged by Charlie Rufus as assistants. Other apprentice herders at the Reindeer Station are looking forward to taking part in similar undertakings as they become qualified and deer become available for the purpose.

Reindeer Station Headquarters, East Channel Mackenzie River

Inspection 1939

In the summer of 1939, an inspection of the Canadian reindeer was made by Dr. Seymour Hadwen, Director of Pathology and Bacteriology, Ontario Research Foundation, Toronto, formerly Chief Veterinarian and Parasitologist of the United States Bureau of Biological Survey, who is an eminent authority on animal life. He reported the herds to be in excellent condition and practically free from disease and parasitism. He was struck by the amazing fertility of the deer as indicated by some of the does only one year old bearing fawns. The high state of health and vigour of the herds was also shown by the appearance of the animals and the fact that a gradual increase had been observed in the dressed weight of the steers slaughtered for meat purposes. The average dressed weight of mature steers had increased from about 150 pounds in 1935 when the original herd was delivered from Alaska to 167 pounds in 1939, with some carcasses weighing as much as 200 pounds. The average dressed weight of the aged does is about 135 pounds. It was considered

that the excellent range and suitable climate, as well as careful management, were contributing factors in the successful development of large and vigorous stock.

Reindeer Husbandry

There are numerous details pertaining to the reindeer industry as carried on in various parts of the world which it is not within the scope of this leaflet to discuss. Publications are available containing extensive data in regard to biological questions, pathology, range conditions, herd management, predators, insect pests, and many other features. The most convenient sources of detailed information in this respect from a Canadian point of view are various bulletins issued by the United States Department of Agriculture, relating to reindeer in Alaska.

Round-up Crew and Equipment En Route
to Corral, Richards Island

The following general remarks concerning reindeer and the handling of these animals under Canadian conditions may be of interest:-

Horns - Reindeer and caribou differ from other species of the deer family in that both sexes have horns. These are dropped annually, the new horns appearing at various times according to sex and age. The state of the horns is a reliable indication of an animal's condition of health. The bucks are the first to lose their horns in the early winter, the steers generally retaining theirs until the spring. The horns of the does are not dropped until the fawning season in the spring. The maturity of fawns is indicated by the horns emerging early from the "velvet" stage. Except at the rutting season in the autumn the horns of the reindeer do not present any particular danger in handling the animals.

Colour - Reindeer in Alaska and Canada are usually brown and grey in colour, with darker shades on the lower parts and head and the neck and shoulders a greyish white. In the distance the various colours unite to present an appearance of soft brown and greys with a tinge of yellow. A few white and spotted animals are generally retained to assist in locating the herds in the distance. It is usually considered that the white animals are inferior to those of normal colour. The hair of the reindeer is shed each year, the bucks being first to lose their coat in the spring.

Size and Weight - In conformation the reindeer is symmetrical, an average full-grown animal standing 42 to 44 inches high, and measuring about 6 feet from nose to tip of tail. The animals are full-grown in about three years. Reference has been made previously to the average dressed weight of steers and aged does (167 lbs. and 135 lbs. respectively) in the Canadian herds. Before the beginning of winter the reindeer usually store a reserve supply of fat on the back along both sides of the spine, the greatest thickness being over the rump tapering off forward of the kidneys.

Habits and Disposition - Reindeer, as observed in North America, are considered to have some of the characteristics of sheep, cattle, and horses, being gregarious like sheep, grazing somewhat like cattle, and possessing intelligence and activity more nearly approaching the horse. They prefer to travel facing the wind, have no difficulty in swimming a river or small lake when necessary, are responsive to control by herders and their dogs, and only tend to become wild when herding and round-ups are neglected.

Fawns - Reindeer are prolific animals and increase rapidly under protection. A number of young fawns are usually lost from various causes, including inclement weather during the fawning season, desertion by the mothers, accidents, and predators. However, as indicated in figures above, the official count at round-up time has shown a substantial increase in the Canadian herds each year. Reductions in the herds occur from various causes including the removal of surplus stock, injuries in handling or on the range, losses from predators, disease and sickness. In counting the fawns it is observed that bucks and does are almost equal in number. There is usually one fawn at a birth, twins being very rare. The newborn fawns are remarkably hardy and strong. The injury of a number of fawns at the round-up is unavoidable but no great loss to the herd is sustained on this account as the hides are utilized and it is in any case necessary to kill a number of fawns to provide hides required for clothing.

Reindeer Products - Meat for food is the principal product of the reindeer industry. The hides of fawns are used for parkas, and hides of mature animals for bedding and, when tanned, for other articles of clothing. Experiments in tanning are being made and

the methods used by Indians are also being studied so that surplus hides may be utilized to the best advantage and the Eskimos acquiring reindeer may be instructed in tanning processes. With the development of the industry in Canada no doubt further use will be made of additional products such as hair, hoofs, sinews, horns, etc. Very little effort is made at present to use reindeer milk. This practice requires roping of the does, a procedure which is not practicable on the open range except in emergency.

In Holding Pen, Corralling Grounds

Round-up - The annual round-up on the summer range is probably the most interesting event which takes place at the Reindeer Station. On this occasion the animals are brought together at the corral, examined individually in regard to condition, tabulated and classified, and any necessary action taken to balance the herd by the castration of surplus bucks and the selection of animals to be slaughtered later in the year. The official count at this time shows the surviving fawn increase for the year. The young animals and those which escaped capture the previous year are marked with a distinguishing mark as Canadian deer. The mark chosen for the main herd is a V-shaped notch in the top of the right ear. The mark for Native Herd No. 1 is a similar notch in the top of the left ear. Other marks will be selected for additional herds as required. The marking of the ear is an old established practice in reindeer husbandry and is preferred to branding which owing to the thinness of the skin may injure the deer. The round-up provides an excellent opportunity to demonstrate the handling of reindeer in large numbers and a keen interest in the proceedings is taken by natives of the surrounding area who assemble for the occasion.

Grazing - As previously mentioned the Canadian reindeer migrate each year in the spring from the winter range to the summer range and return to the winter range in the autumn or early winter. The distance travelled in this semi-annual trek on the reserve is about 75 miles accomplished in easy stages. The reindeer moss (Cladonia rangiferina) on the winter range is the principal food of these animals during the long winter season and it is useless to attempt reindeer herding on a large scale unless such moss is abundant. If overgrazed the moss takes possibly 25 to 40 years to recover. Any danger of overgrazing the moss on the Reindeer Reserve is avoided by a system of rotating the grazing areas, the winter range being divided into a series of allotments. The summer range in the coast area contains a variety of vegetation, such as grasses, shrubs, and sedges, suitable for summer food. The growth of these is renewed annually and there is but little danger of permanent damage by grazing.

Reindeer Grazing along the Arctic Coast

Under Canadian herding methods the deer are allowed to graze freely over an area of sometimes several square miles, the herders watching for deer which may stray too far from the main body. In winter, after a night of stormy weather, it is frequently necessary to follow the tracks of stray animals.

Milling - Reindeer herds when disturbed form a compact body and move in a circular direction. It has been observed that some herds travel to the right when milling and other herds proceed in the opposite direction, in each case following the practice of the herds from which the deer were derived. The Canadian herds mill in an anti-clockwise direction as did their forbears in Alaska. It is necessary to have regard to this feature in the construction of corrals and holding pens.

Meat - Reindeer meat is palatable and easily digested, is of fine grain and possesses a distinctive flavour. It is classed between beef and mutton and many tasty and nutritive dishes can be prepared from a variety of cuts. When properly handled and prepared the meat is delicious, being juicy, tender, and free from gamey flavour.

On Winter Range

Transportation - Reindeer as draught animals play an important part in the life of nomadic peoples in certain northern parts of the world who depend on these animals for subsistence. Reindeer have also been used for transportation purposes such as on relief expeditions, and the transfer of supplies and mail from point to point. In the Canadian herds a number of steers broken to harness are maintained for such purposes as moving the herd camp, hauling firewood, and transferring the herders' families and their baggage and supplies from the winter range to the fawning grounds in the spring. Apparently sled deer are most useful under conditions where their natural food is obtainable en route. In the Canadian North it is unlikely they will replace the time-honoured dog teams for many of the winter trips.

Warble Flies - One of the most interesting features of the reindeer management is the movement of the herds a distance of 15 or 20 miles at the proper time during the summer when the warble fly grubs have been dropped. By removing the deer from the vicinity the danger of reinfection is greatly reduced and this practice tends to keep these pests under control.

Dogs - The use of trained dogs in connection with reindeer herding is a well established custom. The herd dogs at the Canadian Reindeer Station are from Alaskan stock and under the direction of the herders and their assistants play a useful part in maintaining the reindeer herd within a reasonably compact group when grazing on the range. Sled dogs are also kept for the use of the supervisory officers on trips for which reindeer would not be suitable.

Reindeer and Caribou

The similarities between domesticated reindeer and wild caribou have resulted in both these animals being classified in the same genus of the deer family. The reindeer of Europe and Asia (Rangifer tarandus) and the barren ground caribou of America (Rangifer arcticus) were formerly considered to be members of the same species but several species and geographical races are now generally recognized by zoologists. From the standpoint of general characteristics and usefulness to man these animals may be regarded as one closely related group. An important physiological difference is that the breeding season of the caribou is six to eight weeks later than the reindeer. The caribou range over a wide area in their migrations but the reindeer can be maintained within a comparatively limited area and are thus readily available when required. It is noticeable that reindeer become attached to their home range, and with the gradual replacement of the older animals in the Canadian herds by young stock, any tendency to return toward Alaska has practically disappeared.

Concluding Remarks

The reindeer industry in Canada is a matter of direct concern to all citizens. The Dominion Government has initiated and fostered this enterprise with the object of improving conditions for the native population of Canada's northern domain. The introduction of firearms and the encroachment of white men, combined with the changing habits of the Eskimos brought about by the development of the fur trade have rendered the natives more subject than formerly to the fluctuation in wild life resources. The reindeer are intended to provide a reservoir of food and clothing against adverse conditions, to assist in the conservation of the game resources, and to augment in a substantial way the ordinary means of livelihood on which the natives depend.

The Northwest Territories Administration gratefully acknowledges the valuable aid obtained from the United States Biological Survey, now the Fish and Wildlife Service, and the Alaskan Reindeer Service, both of the Department of the Interior, from the Ontario Research Foundation, and from officers of the Departments of the Dominion Government who have participated in the deliberations of the Reindeer Committee.

Copies of this leaflet may be obtained upon application to the Deputy Commissioner of the Northwest Territories, Department of Mines and Resources, Ottawa.

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Hon. T. A. CRERAR, Minister — CHARLES CAMSELL, Deputy Minister

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Heavy Travel to Waterton Lakes National Park

Ottawa, Canada.—Tourist travel to Waterton Lakes National Park in Alberta during August recorded an increase of 10 per cent over the corresponding month of last year, reports the Department of Mines and Resources. A total of 12,026 motor cars carrying 44,718 passengers entered the popular mountain park as compared with 10,887 cars and 40,481 passengers in August, 1940.

American tourist travel to Waterton Lakes Park increased by 28 per cent, with a total of 6,682 United States cars and 22,939 passengers entering the park as against 5,173 United States cars and 17,835 passengers in August a year ago. Canadian travel showed a slight decline, with 5,328 cars and 21,729 passengers visiting the park as compared with 5,692 cars and 22,579 passengers in August of last year.

Cars from every state in the United States were registered at the park during August. Montana led this great tourist parade with 1,169 cars and 3,597 visitors, while California was a close second with 1,066 cars and 3,270 visitors. Travel to Waterton Lakes from other countries in August included 16 automobiles and 50 passengers, these tourists coming from China, Colombia, Dutch West Indies, Salvador, Hawaii, Mexico, Panama, The Philippines, and Puerto Rico.

Research in Wood Aiding War Effort

Ottawa, Canada.—Research on wood products is playing an important part in Canada's war effort, reports the Forest Products Laboratories of the Department of Mines and Resources. Ordinarily the manufacture and use of wood are associated with peacetime activities rather than with destructive warfare, but research work carried out in the past two years reveal that wood is a vital material for a wide range of war purposes.

Many and varied are the uses to which wood is being put during the present conflict, and technical problems in connection with its utilization have involved extensive laboratory investigation. The facilities of the laboratories have been utilized in planning the construction of wooden aerodromes and military camps; in the fire-retardant treatment of wood and plywood for military and naval requirements, and in the preservative treatment of timbers. Research has made possible amendments to United Kingdom specifications for wood used in war equipment built in Canada so as to permit using Canadian species as far as practicable instead of imported timber.

Problems relating to the design and testing of shipping containers of wood, fibreboard, corrugated board, and plywood for the consignment of munitions, foodstuffs and equipment, and the use of Canadian species of wood and plywood in the construction of aircraft, pontoons, life-rafts, and boats have been dealt with. Investigations have been made of types of glue required for different purposes, such as waterproof resin glues used in plywood for house siding, concrete forms, collapsible boats, ships' sheathing, aeroplane covering, and other exposed uses. The seasoning of timber for specific purposes calling for accurate control of moisture, as in the case of wooden airscrews, and the use of resin-bonded, compressed plywood to replace metal for certain structural parts of war equipment have also received attention.

Wood is also used in the manufacture of pulp for cartridge wrappers and of gun cotton, smokeless powders, photographic film, collodion and celluloid plastics. Wood flour is used in the manufacture of dynamite for construction and demolition work. Producer-gas from wood or charcoal may be used as a fuel for internal combustion engines to curtail importation of gasoline and diesel oil. Charcoal from Canadian hardwoods is being used extensively in the manufacture of certain alloys used principally in the construction of aircraft.

Wood is being put to numerous other uses to serve the war effort, and many of the lessons learned from the present emergency indicate important fields for further exploration under more favourable circumstances.

Reindeer Industry Expanding

Ottawa, Canada.—Brought in from Alaska, reindeer in the Canadian Northwest Territories have increased from the original 2,370 animals delivered to the Canadian Government in 1935 to approximately 8,000 head in six years, reports the Department of Mines and Resources. The main herd on the government reserve near the Mackenzie Delta now contains about 5,000 deer, while the remaining 3,000 are in two herds under native management.

The first native herd was established in December, 1938, when 950 animals were separated from the main herd and driven overland to the Anderson River area, about 150 miles eastward. These reindeer were entrusted to the management of an Eskimo, under government supervision, with the understanding that their equivalent would be returned when the herd increased substantially in size. Round-up returns show that this herd has now increased to 2,000 head, and Canada's first Eskimo reindeer rancher is ready to return to the government a herd equal to the 950 head supplied him three years ago. A second native herd of about 825 animals was established in the vicinity of the Horton River, east of the first native herd, in December, 1940. No round-up of this second native herd has been made as yet, but with this year's fawn crop it is estimated to contain more than 1,000 reindeer.

Establishment of additional herds under Eskimo management is planned with a view to extending the reindeer industry over a large area for the benefit of the native population. Young Eskimos are being trained in reindeer husbandry, and on completing their apprenticeship satisfactorily these natives will be entrusted with the management of herds under government supervision, and eventually secure herds of their own. Reindeer ranching does not make any serious change in the nomadic life of the Eskimos, and is proving an important factor in increasing the food supply and in conserving the game resources of the country.

Fisheries Production Up

Ottawa, Canada.—Canada's fisheries production had a marketed value of $45,118,757 in 1940 as compared with $40,075,922 in the preceding year, a gain of more than five million dollars. The 1940 value was the highest recorded since 1930. The sea fisheries contributed $38,910,058, or 86 per cent, of the total production, and the inland fisheries accounted for $6,208,699, or 14 per cent.

Fish of all kinds, including shellfish, taken by Canadian fishermen in 1940 totalled 12,199,666 cwt. as compared with a catch of 10,682,357 cwt. in 1939. The chief increases in quantity were in the catches of herring, pilchards, and cod.

The salmon fishery headed the list with a total marketed value of $14,170,496, of which $13,757,091, or 97 per cent, is credited to British Columbia. The salmon pack of British Columbia totalled 1,470,425 cases valued at $11,427,923, and all the other provinces combined contributed 1,010 cases valued at $9,107, making a total pack for the Dominion of 1,471,435 cases valued at $11,437,030. Herring with a value of $6,256,508 was second on the list of commercial fisheries, and cod with a value of $4,984,504 was third and lobster was in fourth position with a value of $3,187,594.

Fish marketed for consumption fresh, including fresh fillets, had a total value in 1940 of $18,672,804, and the canned product was valued at $17,872,776, and the dried at $1,275,903, leaving a total of $7,297,274 as the value of fish marketed as green-salted, smoked, boneless, oil, meal, and in other forms.

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